

### **Amendments to the Claims**

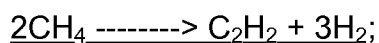
This listing of claims will replace all prior versions and listings of claims in the application:

#### **Listing of Claims:**

1-9. (canceled)

10. (currently amended) A method of generating and supplying acetylene, comprising:

generating acetylene in an acetylene generation device by directing at least one reactant feed stream including ~~at least one carbon containing material~~ methane into the acetylene generation device, wherein the acetylene generation device comprises an arc plasma reactor including an anode and a cathode disposed within the reactor, and the acetylene is generated by generating plasma within the reactor via a power supply connected to the anode and the cathode thereby yielding acetylene and hydrogen according to the formula:



directing the generated acetylene to an acetylene processing device disposed in-line and downstream from the acetylene generation device; and

operating the acetylene processing device to consume at least a portion of the acetylene, ~~wherein the at least one carbon containing material is at least one of natural gas, methane and C<sub>2</sub>-C<sub>8</sub> alkyl and/or aryl hydrocarbons.~~

11. (canceled)

12. (previously presented) The method of claim 10, wherein the process device comprises a carburization device, and operation of the carburization device comprises:

receiving and heat treating steel components within at least one chamber of the carburization device; and

introducing the generated acetylene into the at least one chamber to facilitate absorption and diffusion of carbon at the steel components.

13-14. (canceled)

15. (previously presented) The method of claim 10, further comprising:

prior to directing the generated acetylene to an acetylene processing device, storing the generated acetylene in at least one storage cylinder.

16. (previously presented) The method of claim 15, wherein the at least one storage cylinder is disposed in-line between the acetylene generation device and the acetylene processing device.

17. (previously presented) The method of claim 15, wherein the at least one storage cylinder is free of acetone.

18. (currently amended) The method of claim 10, further comprising:

directing the generated acetylene through at least one purification unit ~~prior to~~ prior to directing the generated acetylene to an acetylene processing device.

19. (canceled)